

WEST**End of Result Set**

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L1: Entry 7 of 7

File: USPT

Feb 19, 1991

DOCUMENT-IDENTIFIER: US 4994023 A

TITLE: Electrochemical drug release and article

Brief Summary Text (4):

A drug so released is described in the article by Blankespoor et al in J. Chem. Soc., Chem. Commun., 90 (1985), relative to the release of the glutamate anion which is important in neurotransmission. However, the number of negatively charged drug molecules is quite small in comparison to the number of cationic alkylammonium based drugs which exert powerful effects on the central nervous system. One attempt to achieve cationspecific release involved the use of a polypyrrole/polystyrene sulfonate molecular composite film which was deposited on an electrode by electropolymerizing and oxidizing pyrrole in the presence of the polystyrene sulfonate anion (Miller et al., Macromol., 20,1594 (1987)). This system contained an immobilized dopant anion (polystyrene sulfonate), thus electrochemical reduction of the polymer in the presence of dopamine resulted in adsorption of the drug cation into the polymer film to compensate for the positive charge that had been removed from the polymer chain. The medication could be rereleased by reoxidation of the conducting polymer. So called, "self-doped", N-alkane sulfonate substituted pyrrole copolymers have become available (Reynolds et al., J. Chem. Soc., Chem. Comm., 620 (1987)) along with 3-alkyl substituted thiophene conducting polymers (Pastil et al., JACS, 109, 1858 (1987)). With these materials, the mechanism of mobile counteraction release involves electrochemical oxidation of the polymer backbone to produce a charge compensated polymeric zwitterion. However, once the pyrrole is alkane sulfonated at the nitrogen position steric disturbances force loss of ring planarity and loss of conduction requiring the copolymerization with unsubstituted pyrrole monomer. This acts to limit the total loading of cationic drugs onto the conducting polymer matrix. Thus, for example, polythiophene 3-substituted alkane sulfonates do not have the steric interference problems of the N-substituted pyrroles but do have air and water stability problems.

WEST[Help](#)[Logout](#)[Interrupt](#)[Main Menu](#)[Search Form](#)[Posting Counts](#)[Show S Numbers](#)[Edit S Numbers](#)[Preferences](#)[Cases](#)**Search Results -**

Term	Documents
BLANKESPOOR	21
BLANKESPOORS	0
BLANKESPOOR.INV..USPT,PGPB,JPAB,EPAB,DWPI.	4
(BLANKESPOOR.INV.).USPT,PGPB,JPAB,EPAB,DWPI.	4

US Patents Full-Text Database
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EPO Abstracts Database
Derwent World Patents Index

Database: IBM Technical Disclosure Bulletins

Search:

L2

[Refine Search](#)[Recall Text](#)[Clear](#)**Search History**DATE: Tuesday, November 25, 2003 [Printable Copy](#) [Create Case](#)**Set Name** **Query**
side by side**Hit Count** **Set Name**
result set

DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ

L2 blankespoor.inv.4 L2L1 polypyrrole polystyrene sulfonate7 L1

END OF SEARCH HISTORY

WEST Search History

DATE: Tuesday, November 25, 2003

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<i>DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ</i>			
L8	l5 and anion	3	L8
L7	l1 and l2	94	L7
L6	L5 and l1	1	L6
L5	poly(N-methyl pyrrole)	16	L5
L4	poly-n-methyl pyrrole	5	L4
L3	polyN-methyl pyrrole	0	L3
L2	polypyrrole	5844	L2
L1	electroactive and anion and dopant	140	L1

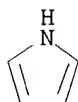
END OF SEARCH HISTORY

09929197blessing

CM 1

CRN 109-97-7

CMF C4 H5 N



8259 REFERENCES IN FILE CA (1907 TO DATE)
331 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
8271 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> d his

(FILE 'HOME' ENTERED AT 21:06:53 ON 25 NOV 2003)

FILE 'REGISTRY' ENTERED AT 21:07:00 ON 25 NOV 2003

L1	1232 S METHYL PYRROLE
L2	4 S POLY(W)N(W)METHYL PYRROLE
L3	21 S POLYPYRROLE

09929197blessing

=> d 12 1-4

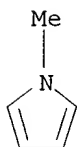
L2 ANSWER 1 OF 4 REGISTRY COPYRIGHT 2003 ACS on STN
RN 149973-09-1 REGISTRY
CN 2-Propenoic acid, 2-methyl-, homopolymer, compd. with 1-methyl-1H-pyrrole
homopolymer (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1H-Pyrrole, 1-methyl-, homopolymer, compd. with 2-methyl-2-propenoic acid
homopolymer (9CI)
OTHER NAMES:
CN **Poly(N-methylpyrrole) polymethacrylic acid salt**
MF (C5 H7 N)x . (C4 H6 O2)x
PCT Polyacrylic, Polyother, Polyother only
SR CA
LC STN Files: CA, CAPLUS

CM 1

CRN 72945-66-5
CMF (C5 H7 N)x
CCI PMS

CM 2

CRN 96-54-8
CMF C5 H7 N

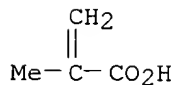


CM 3

CRN 25087-26-7
CMF (C4 H6 O2)x
CCI PMS

CM 4

CRN 79-41-4
CMF C4 H6 O2



2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 2 OF 4 REGISTRY COPYRIGHT 2003 ACS on STN
RN 149973-07-9 REGISTRY
CN 2-Propenoic acid, homopolymer, compd. with 1-methyl-1H-pyrrole homopolymer
(9CI) (CA INDEX NAME)

09929197blessing

OTHER CA INDEX NAMES:

CN 1H-Pyrrole, 1-methyl-, homopolymer, compd. with 2-propenoic acid
homopolymer (9CI)

OTHER NAMES:

CN **Poly(N-methylpyrrole) polyacrylic acid salt**

MF (C5 H7 N)x . (C3 H4 O2)x

PCT Polyacrylic, Polyother, Polyother only

SR CA

LC STN Files: CA, CAPLUS

CM 1

CRN 72945-66-5

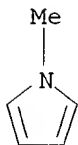
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CCI PMS

CM 2

CRN 96-54-8

CMF C5 H7 N



CM 3

CRN 9003-01-4

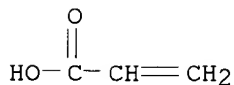
CMF (C3 H4 O2)x

CCI PMS

CM 4

CRN 79-10-7

CMF C3 H4 O2



2 REFERENCES IN FILE CA (1907 TO DATE)

2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 3 OF 4 REGISTRY COPYRIGHT 2003 ACS on STN

RN 126286-58-6 REGISTRY

CN 1H-Pyrrole, 1-methyl-, homopolymer, compd. with vanadium oxide (V2O5)
(9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Vanadium oxide (V2O5), compd. with 1-methyl-1H-pyrrole homopolymer (9CI)

OTHER NAMES:

CN **Poly(N-methylpyrrole)-vanadium pentoxide compd.**

MF (C5 H7 N)x . O5 V2

PCT Polyother, Polyother only

09929197blessing

SR CA
LC STN Files: CA, CAPLUS

CM 1

CRN 1314-62-1
CMF O5 V2
CCI MAN

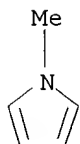
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CM 2

CRN 72945-66-5
CMF (C5 H7 N)x
CCI PMS

CM 3

CRN 96-54-8
CMF C5 H7 N



1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L2 ANSWER 4 OF 4 REGISTRY COPYRIGHT 2003 ACS on STN
RN 72945-66-5 REGISTRY
CN 1H-Pyrrole, 1-methyl-, homopolymer (9CI) (CA INDEX NAME)

OTHER NAMES:

CN N-Methylpyrrole homopolymer
CN N-Methylpyrrole polymer
CN Poly(1-methylpyrrole)
CN **Poly(N-methylpyrrole)**

MF (C5 H7 N)x

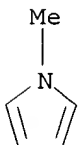
CI PMS, COM

PCT Polyother, Polyother only

LC STN Files: AGRICOLA, ANABSTR, BIOSIS, CA, CAPLUS, CEN, PIRA, PROMT,
TOXCENTER, USPAT2, USPATFULL

CM 1

CRN 96-54-8
CMF C5 H7 N



09929197blessing

399 REFERENCES IN FILE CA (1907 TO DATE)
14 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
399 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> s polypyrrole

L3 21 POLYPYRROLE

=> d l3 10-21

L3 ANSWER 10 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN

RN 125128-67-8 REGISTRY

CN Sulfuric acid, monoethenyl ester, homopolymer, compd. with 1H-pyrrole
homopolymer (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN 1H-Pyrrole, homopolymer, compd. with ethenyl hydrogen sulfate homopolymer
(9CI)

OTHER NAMES:

CN **Polypyrrole-poly(vinyl sulfate) complex**

MF (C4 H5 N)x . x (C2 H4 O4 S)x

PCT Polyother, Polyother only, Polyvinyl

SR CA

LC STN Files: CA, CAPLUS

CM 1

CRN 30604-81-0

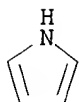
CMF (C4 H5 N)x

CCI PMS

CM 2

CRN 109-97-7

CMF C4 H5 N



CM 3

CRN 25191-25-7

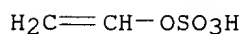
CMF (C2 H4 O4 S)x

CCI PMS

CM 4

CRN 13401-80-4

CMF C2 H4 O4 S



2 REFERENCES IN FILE CA (1907 TO DATE)

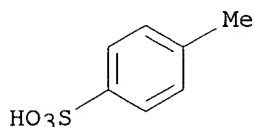
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

09929197blessing

L3 ANSWER 11 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN
RN 121220-42-6 REGISTRY
CN 1H-Pyrrole, homopolymer, 4-methylbenzenesulfonate (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Polypyrrole p-toluenesulfonate**
DR 141844-72-6
MF C7 H8 O3 S . x (C4 H5 N)x
PCT Polyother, Polyother only
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

CM 1

CRN 104-15-4
CMF C7 H8 O3 S

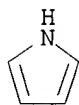


CM 2

CRN 30604-81-0
CMF (C4 H5 N)x
CCI PMS

CM 3

CRN 109-97-7
CMF C4 H5 N



10 REFERENCES IN FILE CA (1907 TO DATE)
10 REFERENCES IN FILE CAPLUS (1907 TO DATE)

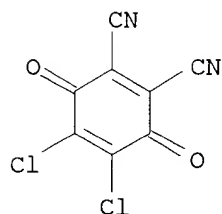
L3 ANSWER 12 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN
RN 118362-82-6 REGISTRY
CN 1,4-Cyclohexadiene-1,2-dicarbonitrile, 4,5-dichloro-3,6-dioxo-, compd. with 1H-pyrrole homopolymer (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1H-Pyrrole, homopolymer, compd. with 4,5-dichloro-3,6-dioxo-1,4-cyclohexadiene-1,2-dicarbonitrile (9CI)
OTHER NAMES:
CN **2,3-Dichloro-5,6-dicyano-p-benzoquinone-polypyrrole complex**
MF C8 Cl2 N2 O2 . x (C4 H5 N)x
PCT Polyother, Polyother only
SR CA
LC STN Files: CA, CAPLUS

09929197blessing

CM 1

CRN 84-58-2

CMF C8 C12 N2 O2



CM 2

CRN 30604-81-0

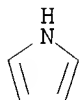
CMF (C4 H5 N)x

CCI PMS

CM 3

CRN 109-97-7

CMF C4 H5 N



1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 13 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN

RN 112869-86-0 REGISTRY

CN 1H-Pyrrole, homopolymer, sulfate (9CI) (CA INDEX NAME)

OTHER NAMES:

CN **Polypyrrole sulfate**

MF (C4 H5 N)x . x H2 O4 S

PCT Polyother, Polyother only

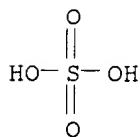
SR CA

LC STN Files: CA, CAPLUS, USPATFULL

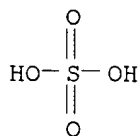
CM 1

CRN 7664-93-9

CMF H2 O4 S



09929197blessing

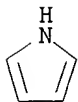


CM 2

CRN 30604-81-0
CMF (C4 H5 N)x
CCI PMS

CM 3

CRN 109-97-7
CMF C4 H5 N



4 REFERENCES IN FILE CA (1907 TO DATE)
4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 14 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN
RN 101333-27-1 REGISTRY
CN 1H-Pyrrole, homopolymer, ion(1+), salt with 4-methylbenzenesulfonic acid
(1:1) (9CI) (CA INDEX NAME)

OTHER NAMES:

CN **Polypyrrole tosylate**
DR 98509-12-7
MF C7 H7 O3 S . (C4 H5 N)x
PCT Manual registration, Polyother
SR CA
LC STN Files: CA, CAPLUS, CHEMLIST

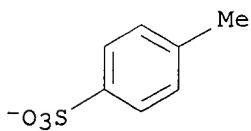
CM 1

CRN 90955-36-5
CMF (C4 H5 N)x
CCI PMS, MAN

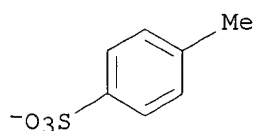
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CM 2

CRN 16722-51-3
CMF C7 H7 O3 S



09929197blessing



13 REFERENCES IN FILE CA (1907 TO DATE)
13 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 15 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN
RN 101051-94-9 REGISTRY
CN Benzenesulfonic acid, ethenyl-, homopolymer, compd. with 1H-pyrrole
homopolymer (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1H-Pyrrole, homopolymer, compd. with ethenylbenzenesulfonic acid
homopolymer (9CI)
OTHER NAMES:
CN **Polypyrrole compd. with poly(styrenesulfonic acid)**
DR 175862-70-1
MF (C8 H8 O3 S)x . x (C4 H5 N)x
PCT Polyether, Polyether only, Polystyrene
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

CM 1

CRN 50851-57-5
CMF (C8 H8 O3 S)x
CCI PMS

CM 2

CRN 26914-43-2
CMF C8 H8 O3 S
CCI IDS



D1- CH=CH₂

D1- SO₃H

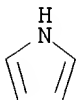
CM 3

CRN 30604-81-0
CMF (C4 H5 N)x
CCI PMS

CM 4

09929197blessing

CRN 109-97-7
CMF C4 H5 N



4 REFERENCES IN FILE CA (1907 TO DATE)
4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 16 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN
RN 94186-78-4 REGISTRY
CN 1H-Pyrrole, homopolymer, ion(2+) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Polypyrrole dication**
MF (C4 H5 N)x
CI PMS, COM, MAN
PCT Manual registration
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 17 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN
RN 90955-36-5 REGISTRY
CN 1H-Pyrrole, homopolymer, ion(1+) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Polypyrrole cation(1+)**
MF (C4 H5 N)x
CI PMS, COM, MAN
PCT Manual registration, Polyother
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 18 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN
RN 89190-35-2 REGISTRY
CN 1H-Pyrrole, homopolymer, ion (pos.), hexafluorophosphate(1-) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Phosphate(1-), hexafluoro-, salt with 1H-pyrrole homopolymer
OTHER NAMES:
CN **Polypyrrole hexafluorophosphate**
MF (C4 H5 N)x . x F6 P
PCT Manual registration
LC STN Files: CA, CAPLUS

CM 1

CRN 89107-14-2
CMF (C4 H5 N)x
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

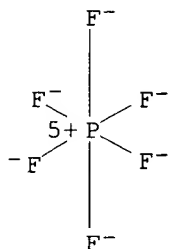
09929197blessing

CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



5 REFERENCES IN FILE CA (1907 TO DATE)

5 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 19 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN

RN 85509-91-7 REGISTRY

CN 1H-Pyrrole, homopolymer, ion(1+), tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Borate(1-), tetrafluoro-, salt with 1H-pyrrole homopolymer (1:1)

OTHER NAMES:

CN **Polypyrrole tetrafluoroborate**

DR 96140-62-4

MF (C4 H5 N)x . B F4

PCT Manual registration, Polyother

LC STN Files: CA, CAPLUS, USPATFULL

CM 1

CRN 90955-36-5

CMF (C4 H5 N)x

CCI PMS, MAN

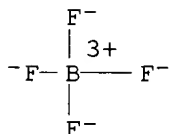
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CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



12 REFERENCES IN FILE CA (1907 TO DATE)

2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

12 REFERENCES IN FILE CAPLUS (1907 TO DATE)

09929197blessing

L3 ANSWER 20 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN
RN 82200-25-7 REGISTRY
CN 1H-Pyrrole, homopolymer, ion(1+), perchlorate (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Polypyrrole perchlorate**
DR 135073-18-6, 97632-97-8, 112196-86-8, 85509-90-6
MF (C4 H5 N)x . Cl O4
PCT Manual registration, Polyother
LC STN Files: CA, CAPLUS

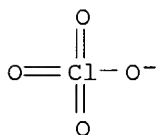
CM 1

CRN 90955-36-5
CMF (C4 H5 N)x
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 14797-73-0
CMF Cl O4



27 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
27 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 21 OF 21 REGISTRY COPYRIGHT 2003 ACS on STN
RN 30604-81-0 REGISTRY
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Pyrrole, polymers (8CI)
OTHER NAMES:
CN Basotronic PYR
CN Lutamer ES 9567
CN Lutamer P 160
CN Poly(1H-pyrrole)
CN **Polypyrrole**
CN PPY 12
CN Pyrrole homopolymer
CN Pyrrole polymer
CN ST-Poly
DR 406219-39-4
MF (C4 H5 N)x
CI PMS, COM
PCT Polyother, Polyother only
LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA,
CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CIN, CSCHM, EMBASE,
IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, PIRA, PROMT, TOXCENTER, TULSA,
USPAT2, USPATFULL, VTB